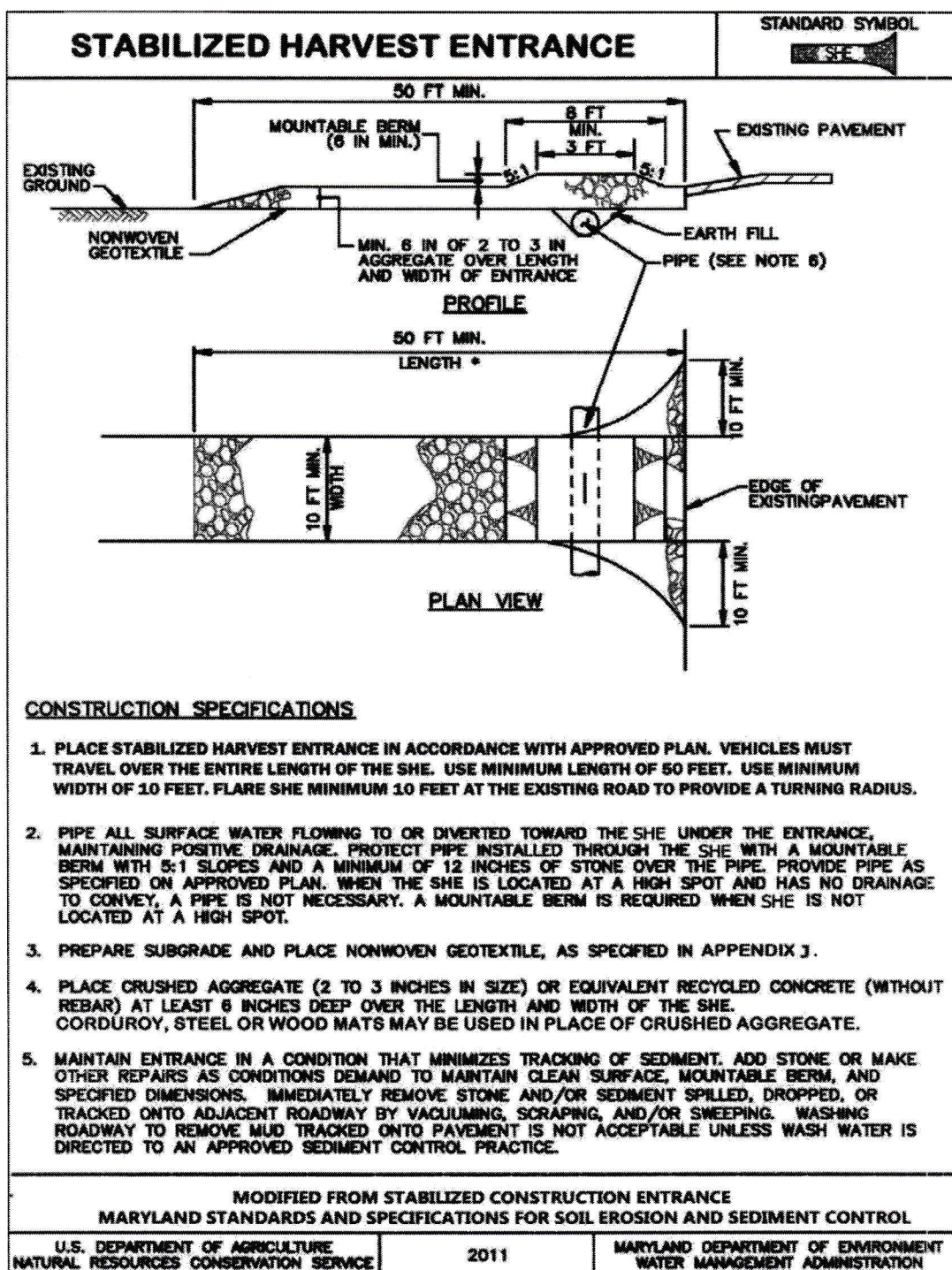
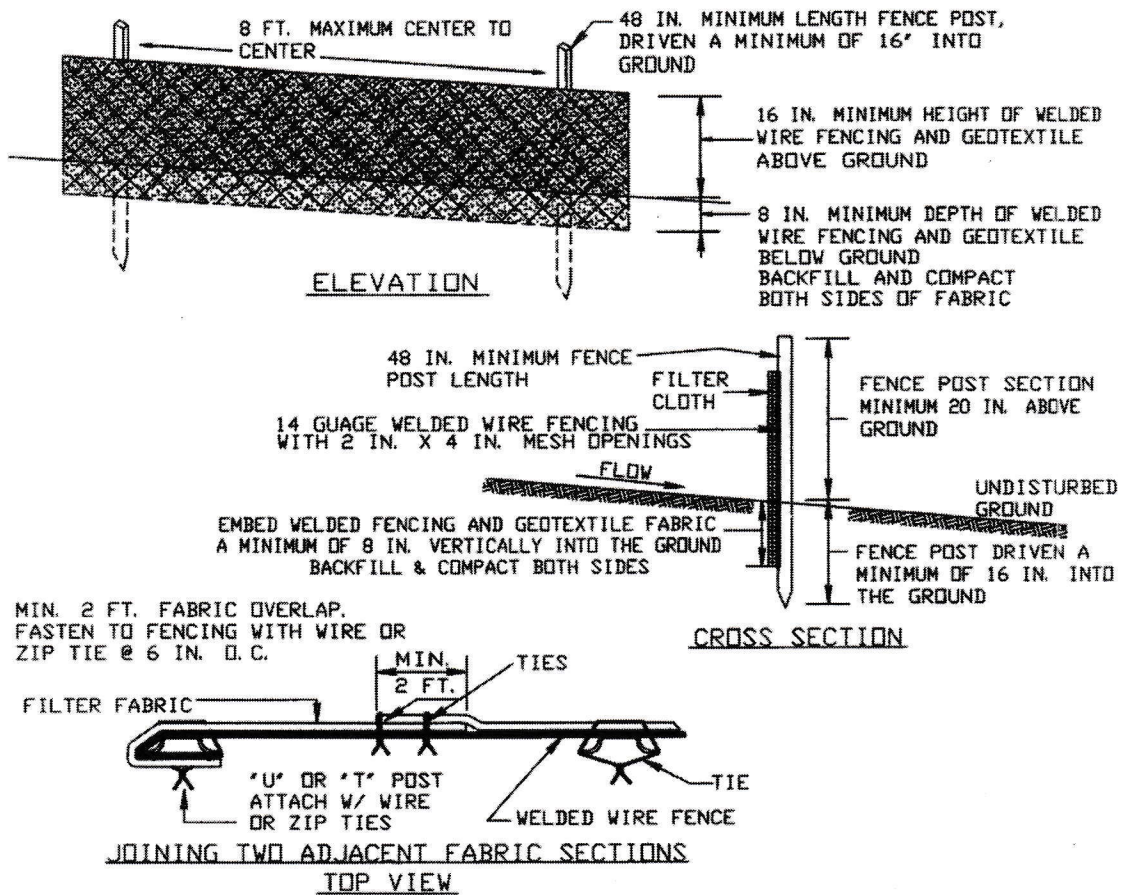
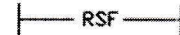


Diagram 4.0 – Stabilized Harvest Entrance



REINFORCED SILT FENCE

STANDARD SYMBOL



CONSTRUCTION SPECIFICATIONS

1. Metal fence post shall be a minimum of 48 inches long, driven 16 inches minimum into the ground and no more than 8 feet apart. Post shall be standard T or U section weighing not less than 1.00 pound per linear foot. Reinforcement shall be 14 gauge welded wire fencing with 2 inch X 4 inch mesh openings.
2. Geotextile shall be fastened securely to each fence post with wire ties or zip ties at top and mid section. Where ends of geotextile fabric come together, they shall be overlapped, folded and wire tied or zip tied to post to prevent sediment bypass.
3. Use a woven geotextile, as specified in section H-1 materials, and fasten to the upslope side of the fence posts with wire or zip ties at top and midsection. The Manufacturer's certification that the fabric meets the requirements in section H-1 must be made available to the inspection/enforcement authority.
4. Extend both ends of reinforced silt fence a minimum of five (5) horizontal feet upslope at 45 degrees to the main fence alignment to prevent runoff from going around the ends.
5. Remove accumulated sediment and debris when bulges develop in the reinforced silt fence fabric or when sediment reaches 25% of the fence height. Replace geotextile if torn. If undermining occurs, reinstall fence.

ANNE ARUNDEL SOIL
CONSERVATION DISTRICT

2015

REINFORCED SILT FENCE

Design Criteria

Reinforced Silt Fence Design Constraints

Average Slope Steepness	Maximum Slope Length	Maximum Silt Fence Length
Flatter than 50:1 (<2%)	300 feet*	Unlimited
50:1 to 10:1 (2-10%)	125 feet	1,000 feet
10:1 to 5:1 (10-20%)	100 feet	750 feet
5:1 (>20%)	40 feet	250 feet

*Maximum slope length is unlimited on the Hydrolic Soil Group (HSG) "A" soils

1. The use of Reinforced Silt Fence must conform to the design constraints listed above.
2. The area downgrade of the Reinforced Silt Fence must be undisturbed ground.
3. Reinforced Silt Fence must be placed along the contour.
4. Reinforced Silt Fence should be used with caution in areas where rocky soils may prevent trenching.
5. Extend both ends of reinforced silt fence a minimum of five (5) horizontal feet upslope and 45 degrees to the main fence alignment to prevent runoff from going around the edges

SPECIFICATIONS FOR TEMPORARY ACCESS WATERWAY CROSSINGS – BRIDGE

Definition

A *temporary access bridge* is a structure made of wood, metal, or other materials that provides access across an intermittent or perennial stream.

Considerations

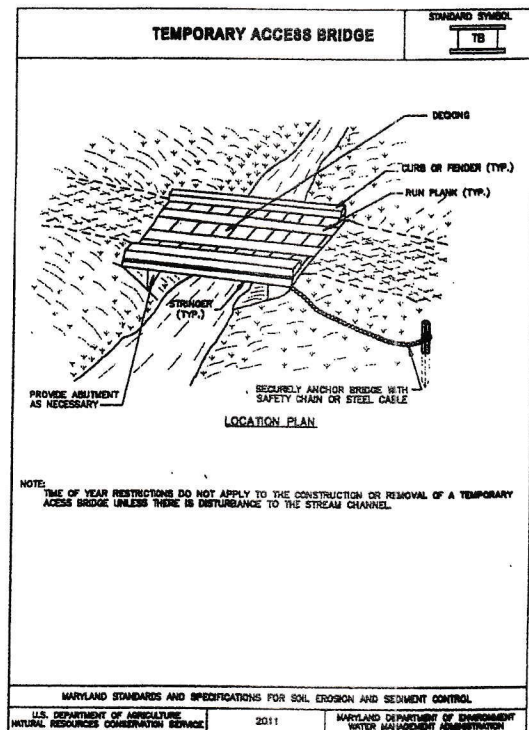
1. *This is the preferred practice for temporary access waterway crossings.* Normally, bridge construction causes the least disturbance to the waterway bed and banks, when compared with the other access waterway crossings. Disturbance to the stream banks shall be kept to a minimum.
2. Most bridges can be quickly removed and reused.
3. Temporary access bridges pose the least chance for interference with fish migration and may eliminate the need for additional permits.

Specifications

1. Construction, use, or removal of a temporary access bridge will not normally have any time-of-year restrictions because construction, use, or removal should not affect the stream or its banks unless built with piers(s) in the water.
2. A temporary bridge structure shall be constructed at or above the bank elevation to prevent trapping floating materials and debris.
3. Abutments shall be placed parallel to and on stable banks.
4. Bridges shall be constructed to span the entire channel. If the channel width exceeds 8 feet, as measured from top-of-bank to top-of-bank, then a footing, pier, or bridge support may be constructed within the waterway if any required Waterway Construction Permit has been obtained. One additional footing, pier, or bridge support will be permitted for each additional 8-foot width of the channel. However, no footing, pier, or bridge support will be permitted within the channel for waterways less than 8 feet wide.
5. Stringers shall be logs, sawn timber, pre-stressed concrete beams, metal beams, or other approved materials.
6. Decking materials shall be of sufficient strength to support the anticipated load. All decking members shall be placed perpendicular to the stringers, butted tightly, and securely fastened to the stringers. Decking materials must be butted tightly to prevent any soil material that has been tracked onto the bridge from falling into the waterway.

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Diagram 10.0
Temporary Access Waterway Crossing – Bridge



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7. Run-planking (optional) shall be securely fastened to the length of the span. One (1) run-plank shall be provided for each track of the equipment wheels. Although run-planks are optional, they may be necessary to properly distribute loads.
8. Curbs or fenders shall be installed along the outer sides of the deck to prevent tracked sediments from falling over the edge of the bridge, and to provide additional safety during transits.
9. Bridges shall be securely anchored at only one (1) end using steel cable or chain. Anchoring at only one (1) end will prevent channel obstruction in the event that floodwaters float the bridge. Acceptable anchors are large trees, large boulders, or driven steel anchors. Anchoring shall be sufficient to prevent the bridge from floating downstream and possibly causing an obstruction to the flow.
10. All areas disturbed during installation shall be stabilized within 24 hours. Approaches to the bridge should be stabilized and kept free of erosion³⁶.

Maintenance

1. Periodic inspection shall be performed by the user to ensure that the bridge, streambed, and stream banks are maintained and not damaged. Decking and curbs should be kept tightly butted without gaps.
2. Maintenance shall be performed as needed to ensure that the structure complies with these specifications. This shall include daily removal and disposal of any tracked sediment or trapped debris. Sediment shall be disposed of outside of the floodplain and stabilized.

Bridge Removal and Cleanup Requirements

1. When the temporary bridge is no longer needed, all structures including abutments and other bridging materials shall be *removed within 14 calendar days*.
2. Final cleanup shall consist of removal of the temporary bridge from the waterway, protection of banks from erosion, and removal of all construction materials. All removed materials shall be stored outside the waterway floodplain.
3. Removal of the bridge and cleanup of the area shall be accomplished without construction equipment working in the waterway channel.
4. All areas disturbed during removal shall be *stabilized within 24 hours*.

³⁶ See Specifications for Revegetation of Disturbed Soils.

Category 3: Revégétation of Disturbed Soils

SPECIFICATIONS FOR REVEGETATION OF DISTURBED SOILS

Definition

This practice provides for *revégétation of disturbed soils* by establishing grass and/or legume vegetation on bare soil areas.

Purpose

This practice re-establishes vegetative cover on soil that was disturbed during the harvest process. Revegetation minimizes erosion and sediment export to watercourses. Consideration should be given to seeding mixtures beneficial to wildlife, shade tolerance and composed of native species.

Conditions When Practice Applies

This practice shall be applied on disturbed forestland areas where (1) normal harvesting activities have exposed the soil and (2) it is explicitly required to vegetatively stabilize the area to prevent or mitigate erosion and sedimentation. Areas of special consideration include areas with highly erodible soils, steep slopes, and long slope lengths.

Specifications

NOTE: These specifications are based upon a USDA Code 342.²⁰

1. Soils with increased erosion potential that were exposed during harvest operations will be *stabilized within three (3) days of disturbance* with seed and mulch. This includes areas:
 - a. With slopes greater than 5 percent *and* within 50 feet of a water body.
 - b. Within 50 feet of other sensitive areas (e.g., property lines, protected habitat).
2. *Within seven (7) days of completion of the harvest or a portion of the harvest*, all disturbed areas on roads, trails, and landings, which are located on slopes 10 percent or greater, shall be graded or backdragged, seeded and mulched, according to specifications. Disturbed areas on slopes less than 10 percent shall be graded or backdragged and left in a condition that permits successful natural regeneration of vegetation. Seeding and mulching will be required on critical areas (i.e., areas where the soil is especially subject to erosion).

²⁰ USDA, NRCS Code 342 is provided in Appendix C.

3. **Site and Seeded Preparation:** Complete all grading and the loosening of compacted soil and install all water control measures prior to preparing a suitable seedbed.

4. **Lime and Fertilizer:** Forest soils have natural fertility and pH levels that are acceptable for establishing shade-tolerant grasses. There is no requirement to add lime or fertilizer under normal conditions. If there is concern about soil fertility, the local Maryland Extension County Office will send soil samples for testing for a small charge. If the soil tests show a need, apply lime and fertilizer at recommended rates, incorporating the additives into the soil by surface roughening.

5. **Seeding:** Selected seed mixtures may be broadcast, drilled, or hydroseeded. Successful seedings are usually conducted in the spring and fall. If broadcasting seed, small or light seed can be mixed with a filler (e.g., sawdust) to provide adequate distribution. Incorporate seed 1/4 to 1/2 inch deep by raking, dragging, cultipacking, or tracking with heavy machinery. Avoid seeding during windy conditions.

6. **Mulching:** Mulch shall be applied to all seeded areas immediately after seeding.

If grading is completed outside of the seeding season, mulch alone shall be applied and maintained until the seeding season returns. Mulch should be removed, the site seeded, and then mulch should be reapplied after seeding is completed.

When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons per acre (100 lbs. per 1000 sq. ft.). Mulch shall be applied to a uniform loose depth of between 1 and 2 inches. Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed.

Maintenance

1. After the vegetation is established, the site shall have 95 percent groundcover to be considered adequately stabilized. If the vegetation provides less than 40 percent ground coverage, restabilize following the original seeded preparation and seeding recommendations. If the vegetation provides between 40 percent and 94 percent ground coverage, overseeding using one-half (1/2) of the rates originally applied shall be necessary.

2. Mowing can be utilized to maintain roads that will be used in the future and/or to maintain open areas for wildlife. When possible, delay mowing until late summer to allow wildlife nesting to be completed, but in time for regrowth before winter. Prevent livestock grazing until plants are well established. Seeded areas must be protected from traffic, particularly during wet periods, if rutting is to be prevented. Freshly seeded roads are particularly vulnerable to damage. Use gates, boulders, or logs to restrict vehicular access.

Table 9 – Nurse Crops (Temporary Seeding) To Be Added To Permanent Seeding Mixes

Mix	Recommended Cultivar	Seeding Rate		Soil Moisture Condition	Remarks
		lbs. / acre	lbs. / 1000 sq. ft.		
Annual Ryegrass <i>Lolium perenne</i> ssp. <i>Multiflorum</i>	Common	13	0.3	Dry to moist	Planting dates: Western Maryland – August 1 to Sept 30 March 15 to May 31 Piedmont – August 1 to Oct 15 Coastal Plain – March 1 to May 15 August 15 to Nov 30 Feb 15 to April 30
Barley <i>Hordeum vulgare</i>	Common	32	0.7	Dry to Moderately Dry	
Oats <i>Avena sativa</i>	Common	24	0.6	Dry to moist	
Wheat <i>Triticum aestivum</i>	Common	40	0.9	Dry to Moderately Dry	
Forail Millet <i>Setaria italica</i>	Common	10	0.2	Dry to moist	Planting dates: Western Maryland – June 1 to July 31 Piedmont – May 16 to July 31 Coastal Plain – May 1 to August 14
Pearl Millet <i>Pennisetum glaucum</i>	Common	7	0.2	Dry to moist	

(i) Select a nurse crop to add to the permanent seeding mix, based on the time of year for planting. Use only one (1) nurse crop for each permanent seeding mix. Do not use a mixture of nurse crops.

Table 10 – Permanent Seeding Mixtures

Mix	Recommended Cultivar	Seeding Rate		Soil Drainage Class	Wildlife Value	Remarks
		lbs. / acre	lbs. / 1000 sq. ft.			
1 Hard Fescue AND ADD: Kentucky Bluegrass Perennial Ryegrass	Common or Bighorn MD turf-types(I) Blazer(II) or Pernline	40	0.92	Well Drained to Somewhat Poorly Drained	Low	For best results, recommend using a blend of 3 cultivars of Kentucky Bluegrass
2 Creeping Red Fescue	Dawson, Flyer Pernline, Ruby, Fortess, or Salem	30	0.69	Excessively Drained to Moderately Well Drained	Low	Use Rough Bluegrass on moist shady sites
Chewings Fescue Kentucky Bluegrass OR Rough Bluegrass	Common MD turf-types(I) Common	30 20 20	0.69 0.46 0.46	Moderately Well Drained		
3 Deertongue (<i>Dactylis glomerata</i>) Sheep Fescue OR Canadian Wild Rye Redtop	Tioga Common or Bighorn Common Straker	20 20 3 1	0.46 0.46 0.07 0.02	Excessively Drained to Moderately Well Drained	Moderate	Excel lent for droughty acidic soils. Sheep Fescue, Canada Wild Rye, and Redtop are cool season grasses that will provide erosion protection while the warm weather Deertongue is becoming established.
PLUS Common Lespedeza OR Korean Lespedeza	Kobe Climax or Rowan	10 10	0.23 0.23			Common Lespedeza is more tolerant of low acidity than Korean Lespedeza. These are both reseeding annuals.
4 Big Bluestem Little Bluestem Indiangrass Creeping Red Fescue	Niagara or Roundtee Aldous or Blaze Runsey Dawson, Pennlawn, Flyer, Ruby, Fortess, or Salem	6 4 6 15	0.14 0.09 0.14 0.34	Excessively Drained to Moderately Well Drained	Moderate	All species are native to Maryland. Creeping red fescue is a cool season grass that will provide erosion protection while the warm weather grasses are becoming established.
Partridge Pea Bush Clover Wild Indigo Showy tick-trefoil	Common Common Common Common	4 2 2 1	0.09 0.05 0.05 0.02			